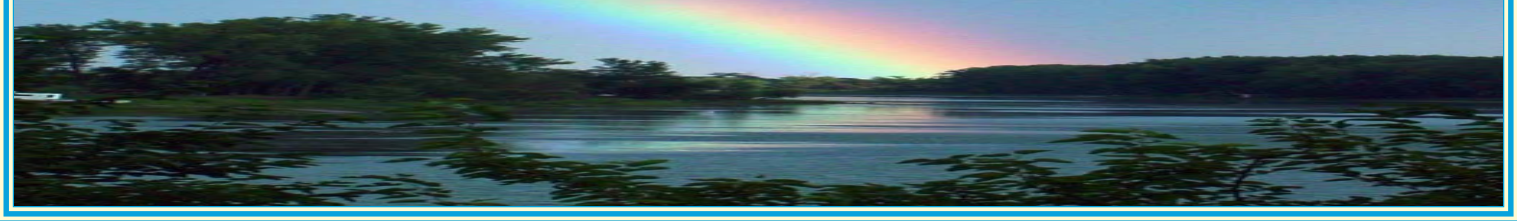
The Mountain Weather Journal

Volume 1 **Issue 4**



Whatís New at JKL????

By: Shawn B. Harley
Meteorologist-in-Charge

Greetings from your friends and neighbors at the National Oceanic and Atmospheric Administrationís (NOAA) National Weather Service Forecast Office in Jackson, Kentucky. I hope everyone is having a safe and enjoyable spring. While severe thunderstorms can occur at any time of year, it is during the spring and early summer when the threat of severe thunderstorms reaches its peak. To stay safe, it is vital to be prepared for severe weather, and to know what to do if a warning is issued. In this newsletter you can find important information about severe weather preparedness. A critical part of being prepared is having a means of receiving reliable warning information 24 hours a day.

To be alerted of potentially life saving warnings we encourage everyone to have a NOAA All Hazards Weather Radio in their home and at their place of business. Through NOAA All Hazards Weather Radio you can receive weather information and warnings any time of the day or night. With Specific Area Message Encoding (SAME) radios you can program the counties for which you want an audio alarm to sound when a warning is issued. This feature allows you to receive the audio alert only for the counties that you are interested in.

The National Weather Service in Jackson operates a network of 20 All Hazards Weather Radio transmitters in eastern and south central Kentucky. This network was expanded over the winter with a new transmitter being activated in Irvine, Kentucky on January 11. Estill County Emergency Management secured funding for the purchase and installation of the new transmitter, and has the capability to broadcast alerts in the event of a non-weather related emergency. With 20 transmitters, the National Weather Service in Jackson broadcasts warning information for 47 Kentucky counties, 4 Virginia counties, and 2 counties in West Virginia.

While nearly all emergency information broadcast on the NOAA radio network is weather related, we will also broadcast alerts for non-weather related emergencies. In cooperation with the Kentucky Division of Emergency Management we broadcast AMBER alerts, and also will issue alerts for non-weather related emergencies, including evacuation alerts for hazardous chemical releases and spills. In addition, last year NOAA signed an agreement with the Department of Homeland Security (DHS) that allows the DHS to broadcast homeland security alerts through the NOAA All Hazards Weather Radio network. As you see, what used to be called NOAA Weather Radio has truly become the ìNOAA All Hazards Weather Radio.î

As always, we would appreciate hearing from you. If you have any comments regarding the newsletter, NOAA All Hazards Weather Radio, our webpage, or any other service we provide please give us a call, send us an email, or drop us a note. We are constantly striving to improve our products and services and your feedback is important.

Is your organization interested in hosting Spotter Training? If so, contact Phil Hysell, WCM, at (606) 666-2560, Ext. 726 for more information.

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Aviation News -- TAFs

By: Jason Moran
General Forecaster

Have you ever heard anyone mention something about an aviation forecast or perused our weather page on the internet and come across the aviation forecast and wondered what exactly an aviation forecast is? Here is your answer.

An aviation forecast is called a Terminal Aerodrome Forecast or TAF by the National Weather Service (NWS). The TAF is the primary forecast of aviation related weather for specific airports. It is used by everyone from general aviation pilots to commercial carriers in order to anticipate weather conditions at take off and landing. TAF content can have a strong impact on fuel loads, the need for alternate landing sites, and other aspects of aviation operations.

The Jackson NWS composes TAFs for three locations in Eastern Kentucky. The locations are the Jackson Julian-Carroll Airport, the London-Corbin Airport, and the Somerset-Pulaski County airport. TAFís are issued four times a day and updated when necessary.

A NWS TAF consists of expected meteorological conditions significant to aviation at an airport (terminal) for a specified time period. At a minimum TAFs contain the following weather elements: winds, visibility, and sky cover. TAFs will also contain weather and wind shear when required. The U.S. definition of a terminal is the area within a five rating of the center of an airportís runway complex. Forecasters prepare and monitor TAFs using the best professional judgment to optimize timeliness and representativeness, with an awareness of the potential operational impact of each forecast element.

Reduced visibility or low ceilings (a ceiling means that over half the sky contains clouds) often cause delays, diversions, or cancellations. Nearly 74% of all delays at airports are caused by weather, with the majority of such delays caused by low ceilings and visibility. Anyone who lives in Eastern Kentucky knows that low clouds and poor visibility (especially in fog) are prevalent many days throughout the year. This is why planning is paramount for aircraft operational purposes.

As mentioned, TAFs are geared towards meteorological conditions significant to aviation at an airport (terminal) for a specified time period. The following table lists the basic ceiling and visibility requirements for the standard aviation flight rules. Whether Visual Flight Rules (VFR) conditions or Instrument Flight Rules (IFR) conditions are in effect will determine how efficiently an airfield can operate and what types of aircraft and pilots are permitted to approach or depart. Discrete flight category value changes for VFR, Marginal Visual Flight Rules (MVFR), IFR, or Low IFR (LIFR) have significant operational impacts (e.g., fuel requirements, alternates), and the terminal forecast must be responsive to those changes.

The flight categories and corresponding ceiling and visibility values are listed below.

Flight Category (statute miles)	Ceiling (feet)	†	Visibility
LIFR	< 500 ft	and/or	< 1 SM
IFR	≥ 500 to < 1,000 ft	and/or	≥ 1 to < 3 SM
MVFR	≥ 1,000 to ≤ 3,000 ft	and/or	≥ 3 to ≤ 5 SM
VFR	> 3,000 ft or none	and	> 5 SM

Ceiling and/or Visibility Thresholds Within a Flight Category

Ceiling and/or Visibility Threshold	Operational Impact
< 2,000 ft and/or < 3 mi	Alternate destination and increased fuel required for IFR planning. May restrict visual approaches, reducing airport arrival rates.
< 800 ft and/or < 2 mi	Non-precision-approach airports cannot be used as an IFR flight planning alternate.
< 600 ft and/or < 2 mi	Airport cannot be used by most operators as an IFR flight planning alternate.
< 200 ft and/or < 1/2 mi	These forecast conditions preclude dispatch/release to the airport as a destination or alternate for most operators. Operators approved for approach Category II/III could dispatch as a destination airport.

Visit our internet at:
www.weather.gov/jacksonky
or call us at **(606) 666-8000** for forecast information.

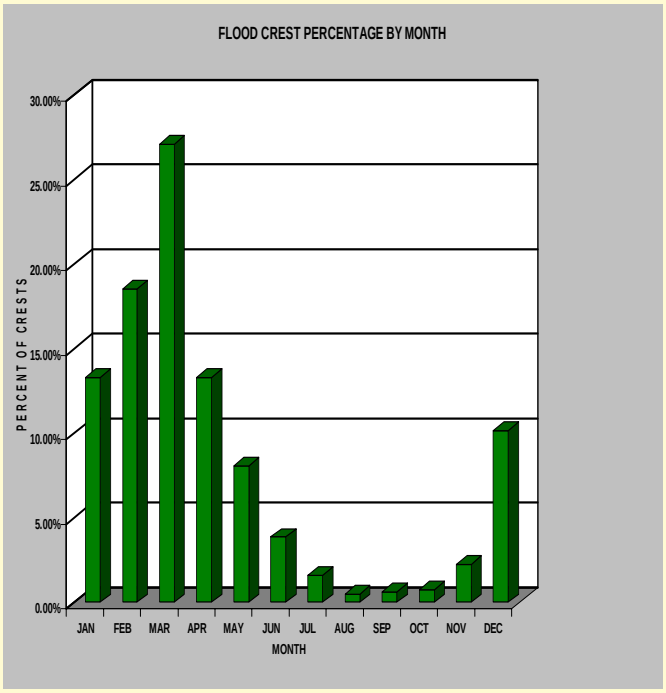
Hydrology

By: Britt Westergard
Service Hydrologist

Spring is here, and the river flood season with it. Even though we havenít had any river flooding so far in 2005, weíre not out of the woods just yet. While flash flooding can and does happen year-round, river flooding tends to happen in Eastern Kentucky mostly during the winter and spring months.

The graph below shows what percentage of all river forecast point floods have occurred in each month. For example, 27 percent of all recorded flood crests have happened in the month of March. As you can see from the graph, December through May account for the majority of river flood crests in WFO Jacksonís area of responsibility. In fact, the months of June through November combined account for less than ten percent of all flood crests.

Looking at the graph, you may notice that this past September was very unusual in terms of flooding. In the 805 flood crests used to create this graph, only 5 of the floods occurred in September. Of those 5 September flood crests, 4 occurred this past September on the South Fork of the Kentucky River at Booneville, the Kentucky River at Heidelberg, the Red River at Clay City and the Cumberland River at Williamsburg.



Speaking of flooding, the National Weather Service has lowered the stage at which we issue Flood Warnings both at the Red River at Clay City and the Licking River near Salyersville forecast points. By coincidence, the flood stage at both locations has been lowered from 19 feet to 17 feet. At Clay City, this change was in response to roads being affected by floodwaters before the old flood stage was reached. Near Salyersville, flood control projects in and around Salyersville forced the relocation of the river gage. The level at the new gage where flooding problems begin is lower than the flood stage at the former location, thus the flood stage was lowered.

Finally, with the river flood season not yet behind us and flash flooding always possible in Eastern Kentucky, your National Weather Service Office would like to remind you that when approaching a flooded roadway, ìTURN AROUND, DONíT DROWN!î

Tech Tips

By: Phil Hysell
Warning Coordination Meteorologist

How You Can Receive Weather Information From the Convenience of Your Computer!

If you can receive a TV signal from Kentucky Educational Television (KET), then for a one time fee and some simple installation, you can receive valuable weather information such as weather radar images, forecasts, and warnings! How is this possible?

Now that KET is transitioning to digital transmission from analog transmission, they have reserved a portion of their digital capacity for **datacasting.** Datacasing is the broadcast transmission of encoded text, image, and even audio and video files for capture by computers throughout Kentucky.

So, what do you need to convert this signal into useful weather information? First youíll need to make sure your computer has the hardware needed to display this data. The minimum requirements are: a 500 MHz Pentium computer or better with WindowsÆ XP, or WindowsÆ 2000 with Service Pack 4 or later installed, and Windows MediaPlayerÆ version 9 or above. Second, youíll need an antenna capable of receiving digital television signals. A visit to your local electronics store can help you find the right antenna. Next, youíll need a datacast receiver box. Datacast receivers are available in two basic configurations: a stand-alone system, in which a single PC is connected to a receiver, and a multi-user system in which one receiver connects to several computers via your local-area network. LAN systems require the ability to pass

Tech Tips (Continued)

By: Phil Hysell
Warning Coordination Meteorologist

multicast packets between the datacast receiver and the client PCs. You can obtain one of these receivers through one of these companies:
BroadBand Technologies Inc.
Air2PC-ATSC (PCI and USB models)
Air2LAN (Ethernet LAN)
P.O. Box 85
Renesselaerville, NY 12147
(518) 827-8502

Novra Technologies Inc.
A75 Broadband Receivers (Ethernet LAN)
1100-350 St. Mary Avenue
Winnipeg, Manitoba
Canada R3C 3Z5
(204) 989-4724

Finally, youíll need software to view the data. This is free and can be downloaded from this website: http://www.ket.org/dtv/datacast_equipment.htm

To increase the amount of weather information you can receive through the KET datacast, you can purchase EMWIN (Emergency Managerís Weather Information Network) software. This will allow you to view most of the remainder of the National Weather Serviceís text products. For a listing of EMWIN vendors, please visit this website: http://iwin.nws.noaa.gov/emwin/winven.htm

Once you have everything in place, youíll be able to monitor the latest warnings, forecasts and up to minute radar right from you PC! If you have any questions, please visit the KET datacasting website at: http://www.ket.org/dtv/datacasting.htm

Storm of the Season

By: Phil Hysell
Warning Coordination Meteorologist

For those who enjoy the snow, this winter has been disappointing as of this writing. Through February the National Weather Service in Jackson has tallied only 8.5 inches of snow which is over 10 inches below normal. As a result, there havenít been many events from which to choose for this edition of ìStorm of the Seasonî.

One has to search back to September of 2004 to find the last significant weather event that affected a large portion of eastern Kentucky. While we usually donít have to worry about the damaging winds associated with hurricanes, the torrential rains associated with the remnants of these storms can still cause problems for areas well inland. Unfortunately, eastern Kentucky had to deal with two such storms in one month!

The first was Frances which brought two to five inches of rain across much of the area on the 8th of September. This resulted in flooded roadways across Bell, Morgan, Wolfe, Powell, Montgomery, Lee and Estill Counties. Frances also left the soil saturated, and rivers and streams running 90% above their mean daily stream flow.

Before the ground could dry and river levels could subside, another tropical system, Ivan, pounded our area less than 10 days later. With Frances saturating the eastern Kentucky ground, persistent heavy rains brought by Ivan caused flooding on the 17th and 18th that was much more widespread. While most areas received 3 to 5 inches of rain, some locations in Bath, Laurel, and Rowan counties had rain gages that recorded rainfall totals in excess of five inches.

This flooding was both historic and tragic. The South Fork of the Kentucky River at Booneville and Heidelberg, and the Red River at Clay City exceeded flood stage. This was the first time in recorded history that these rivers exceeded flood stage in the month of September. This was also the case for the Cumberland River, when it exceeded flood stage by nearly three feet at Williamsburg.

Sadly, there was one fatality associated with the flooding. Late in the evening on September 18th, a young man drove into flood waters on Highway 459, five miles southwest of Barbourville, and drowned. This is a somber reminder to never drive into water covered roads. Please, ***TURN AROUND DONíT DROWN***.

September 2004 was the second wettest on record in Jackson with 7.55 inches of rainfall. Ninety-nine percent of this rainfall total was due to Frances and Ivan. Had it not been for these tropical systems, this article might have been about drought and forest fires!

Weather Safety

By: Phil Hysell
Warning Coordination Meteorologist

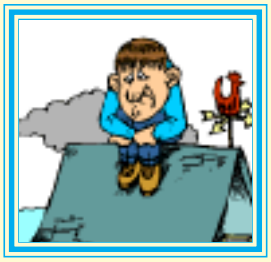
Stay Safe This Severe Weather Season!

While severe weather can occur any time of year across Eastern Kentucky, the peak severe weather season runs from April through June. So, as we fast approach this potentially dangerous time of year, now is a good time to review some weather safety rules.

Weather Safety (Continued)

By: Phil Hysell
Warning Coordination Meteorologist

- ***Flash Flooding***



Flash floods and floods are the number one weather related killer in Kentucky and across the United States. For more information on floods and flash floods please visit:

http://www.nws.noaa.gov/floodsafety/.

If driving, **DO NOT DRIVE THROUGH FLOODED AREAS!** Even if water looks shallow enough to cross. The large majority of deaths due to flash flooding are due to people driving through flooded areas. Water depth ofonly one foot can displace 1500 pounds! Two feet of water can easily float most vehicles. Roadways concealed by floodwaters may not be intact.

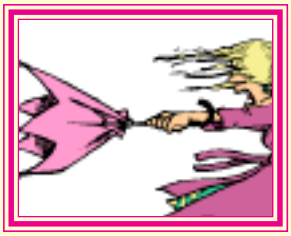
If caught outside, move to higher ground immediately! Avoid small rivers or streams, low spots, culverts, or ravines. Do not try to walk through flowing water more than ankle deep, as it only takes six inches of water to knock you off your feet. Do not allow children to play around streams, drainage ditches or viaducts, storm drains, or other flooded areas.

- ***Lightning***

On Average lightning kills more people than tornadoes yearly in Kentucky. Although Severe Thunderstorm Warnings are NOT issued for lightning, you should move to shelter when thunder is heard as lightning can strike 10 to 15 miles away from where the rain is falling.

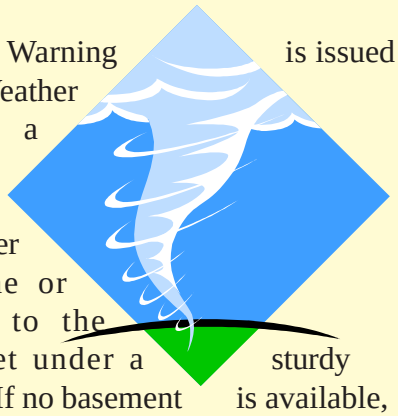
If outside, go to a safe shelter immediately, such as a sturdy building. A hard top vehicle with the windows up can also offer fair protection. If you are boating or swimming, get out of the water immediately and move to a safe shelter away from the water. If you feel your hair stand on end, lightning is about to strike you! Squat with your head between you knees. Do not lie flat. During a thunderstorm you should avoid isolated trees or other tall objects, bodies of water, sheds, fences, convertible automobiles, tractors, and motorcycles. If inside, avoid using the telephone (except for emergencies) or other electrical appliances.

- ***Thunderstorm Winds***



A Severe Thunderstorm Warning means 58 mile per hour winds or greater, or penny size hail or larger are expected. Severe Thunderstorm winds can be stronger than most tornadoes in Eastern Kentucky. Damaging Severe Thunderstorm winds are more common than tornadoes, and can overturn mobile homes, tear roofs of homes and buildings, and can uproot trees. Therefore, it is important that you take shelter, preferably in a basement, and stay away from windows during a Severe Thunderstorm Warning.

- ***Tornado Safety***

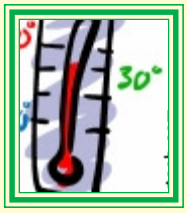


A Tornado Warning is issued by the National Weather Service when a tornado has been sighted, or indicated by doppler radar. In a home or building, move to the basement and get under a sturdy piece of furniture. If no basement is available, move to a small interior room away from windows on the lowest floor and get under something sturdy. Mobile homes offer little protection from tornadoes. You should leave a mobile home for a more sturdy shelter. Never try to outrun a tornado in your car; instead leave it immediately for safe shelter. If no shelter is nearby, lie in a ditch with your head covered. Do ***NOT*** seek shelter under a highway bridge or overpass!

Climate Summary

By: Jeff Carico
Hydrometeorological Technician

…Warmer with near normal precipitation during the 2004/2005 winter season for Eastern kentucky...



The Climate period of December through February saw a few notable monthly events occur. The Jackson Weather Office had the 11th warmest December on record as well as the 11th driest December since climate records begain in 1981. The warm trend continued into the next month for Jackson with January 2005 going down as the 6th warmest and also the 6th wettest on record. February 2005 saw Jackson as the 8th warmest and the 7th driest. Neither Jackson nor London saw the mercury dip below zero this winter. In fact, Jackson hasnít been below zero since February 5, 1996, while London last had a sub-zero reading on January 27, 2003.

The Jackson Weather Office had an average temperature of 40.5 degrees through the 3 month period of December, January and February. This is 3.8 degrees above the normal average of 36.7 for that time. Also of note, the winter of 2004/2005 tied as the 4th warmest winter ever at Jackson. The highest winter temperature at Jackson was 72 degrees and happened on December 7th and January 13th. Jackson saw a winter low of 3 degrees above zero which occurred on December 20th. the London-Corbin Airport averaged 39.7 degrees from December 2004 through February 2005, which is 2.5 degrees above the normal average of 37.2 degrees. London saw a wintertime high of 71 degrees on December 7th and recorded a wintertime low of 4 above on December 20th.

Jackson totalled 11.42 inches of precipitation for December, January and February. Jackson normally receives 11.51 inches of rainfall during that 3 month period. Even though Jacksonwas 0.09 inches below normal, the wintertime total was the 10th wettest on record. London accumulated 12.12 inches of precipitation from December 2004 through February 2005, which is 0.08 inches above normal. London normally receives 12.04 inches of precipitation during the winter season.

News from the COOP

By: David Stamper
Data Acquisition Manager

Seems as though every edition of ì**The Mountain Weather Journal**î includes an obituary for one of our Weather Observers. I am very sad to pass on to you that Mary Kennedy Stamper passed away on Friday, February 18, 2005. Mary was the observer at Longís Creek, KY in Breathitt County.

Mary had been suffering from an illness for a long time and it finally got her. I spoke with Maryís daughter in law in January and she said that Mary wasnít doing too well. I decided to stop and visit Mary and her husband Ed, and I am glad that I did. Mary hadnít arrived home from work by the time I got there, so Ed showed me some of the tricks he was working on. It was always fun to visit with Mary and Ed. They have great stories to tell and always made sure you eat some with them. Both, Ed and Mary, are hard working country folk and are working at something all the time.

Mary was employed by the KY Valley Education COOP and part of her job was to help the young men at the Detention Center prepare for their GEDs. She always spoke very highly of the young men in that program. Mary used to write articles for the local newspaper and they were always filled with interesting weather folklore. The staff of the Jackson Weather office would like to extend our deepest sympathy to the Stamper Family. I will miss Mary very much.

Kidís Corner

By: Bonnie Terrizzi
Hydrometeorologist Technican

What effect does weather have on our farmers? For plants to grow, they require soil, water, and sunshine. What happens if the farmerís crops donít get enough of one of the elements, or get too much? Follow this experiment to see what happens.

You will need:

* 4 small flower pots used for starting seeds.
* Small saucer to place under the flower pots.
* Potting soil
* Vegetable or Flower seeds, Lima Beans or Sunflowers work well.
* A sunny window
* Watering can with water

First Steps

* Fill all your pots about 1/2 full with potting soil
* Place 3 seeds in the middle of each pot
* Add more potting soil about 1/4 inch from the top of the pot.

Now

* Place all the pots on a sunny window sill except for one.
* Place that one pot in momís refrigerator. Make sure to give it a drink!
* Water one pot until it is soaking wet. Donít let this pot dry out, but give the other just enough water to make the soil damp. Keep one pot totally dry. Donít get them mixed up!

Then

* Every day, give one pot too much water, one pot keep moist and one pot keep dry.
* The pot in momís refrigerator should get a small amount of water every couple of days. The idea is to keep it dark and cool.
* Have patience and wait about 10 days.

What Happened?

* The pots on the sunny window should have tiny sprouts beginning to grow because they have been kept moist with plenty of sunshine.
* The pot that was kept soaking wet will have nothing growing and may smell a little funny. Seeds will rot with too much water.
* The pot that was kept totally dry will also have nothing growing as the seeds require moisture to germinate.
* The pot in momís refrigerator with no warmth and no sunlight will also not grown. Both the dry pot and the cool and dark pot seeds willgrow if given the proper light and moisture. The over-watered seeds will not recover.

The Farmer and the Weather

The farmer must keep weather conditions on his mind every day.

* It must be warm enough with plenty of sunshine.
* Rainfall must be enough, but not too much.
* If it goes too long without rain, the farmer must irrigate his crops.
* When everything is right, crops will grow.